Amendment to the Claims

Please amend the claims as follows:

1. (Original) An apparatus for electrically isolating an inner pipe and an outer pipe, wherein the inner pipe is substantially concentric within the outer pipe, forming an annulus, the inner pipe having a plurality of weld joints and an outer surface and the outer pipe having an inner surface, comprising:

an electrically and thermally insulating ring, the insulating ring having an outside diameter surface, an inside diameter surface and a selected length along the annulus, the insulating ring disposed so as to concentrically surround the inner pipe within the annulus, and further disposed such that the inside diameter surface of the insulating ring abuts the outer surface of the inside pipe over the selected length, and further sized to provide a gap between the outside diameter surface of the insulating ring and the inner surface of the outer pipe.

2. (Original) The apparatus of claim 1, wherein the insulating layer ring is comprised of polyurethane foam.

3. (Original) The apparatus of claim 2 further comprising a solid skin, the solid skin forming the outer diameter surface of the insulating ring.

4. (Original) The apparatus of claim 3 wherein the solid skin is comprised of solid polyurethane.

5. (Original) The apparatus of claim 1 wherein the gap between the outside diameter surface of the insulating layer ring and the inner surface of the outer pipe is less than 0.25 inch.

6. (Original) The apparatus of claim 1 further comprising an electrically insulating coating on the outer surface of the inner pipe over a selected length along the annulus.

7. (Original) The apparatus of claim 6 wherein the electrically insulating coating is comprised of fusion bonded epoxy.

8. (Original) The apparatus of claim 6 wherein the thickness of the electrically insulating coating is greater than 20 thousandths of an inch.

9. (Original) The apparatus of claim 1 further comprising insulating half-shells disposed over a plurality of welds in the inside pipe.

10. (Original) The apparatus of claim 1 further comprising a plurality of water stops, the water stops being disposed at selected positions.

11. (Original) A water stop for limiting water flow in an annulus between an inner pipe and an outer pipe of an electrically heated pipeline having an axis in a pipe-in-pipe configuration, comprising:

an electrically insulating plug, the plug disposed such as to concentrically surround the inner pipe and fill the annulus over a selected length along the annulus, the plug having a first end face and a second end face;

a first electrically insulating seal, the first seal being in contact with the first end face of the plug and having a selected thickness and being disposed such as to concentrically surround the inner pipe and radially fill the annulus; and

a second electrically insulating seal, the second seal having a first face and a second face and having a selected thickness and being disposed such as to concentrically surround the inner pipe and radially fill the annulus, the second face being in contact with the second end face of the plug .

12. (Original) The water stop of claim 11, wherein the plug is comprised of polyurethane.

13. (Original) The water stop of claim 11, wherein the first and second seal is comprised of a rubber.

14. (Original) The water stop of claim 13, wherein the rubber has a durometer in the range from about 40 to about 65.

15. (Original) The water stop of claim 13 wherein the rubber is SYLGARD.

16. (Original) The water stop of claim 11 further comprising a layer of fusion bonded epoxy disposed between the inner pipe and the plug.

17. (Original) The water stop of claim 11, wherein the selected length of the plug along the annulus is less than about 3 feet.

18. (Original) The water stop of claim 11 wherein the first face of the second seal supports at least one collar, the collar extending a selected distance from the first face.

19. (Amended) The water stop of claim 11 further comprising a super absorbent material disposed around the collar.

20. (Original) A water stop for limiting water flow in an annulus between an inner pipe and an outer pipe of an electrically heated pipeline having an axis in a pipe-in-pipe configuration, comprising:

an electrically insulating plug, the plug disposed such as to concentrically surround the inner pipe and fill the annulus over a selected length along the annulus, the plug having a first end face and a second end face, the first end face being perpendicular to the axis of the pipe-in-pipe configuration and the second end face being directed at a known non-perpendicular angle with respect to the axis of the pipe-in-pipe configuration;

a first electrically insulating seal, the first seal having a first face and a second face, the first face being in contact with the first end face of the plug and having a selected thickness and being disposed such as to concentrically surround the inner pipe and radially fill the annulus;

an electrically insulating angle-correcting piece sized to fit the annulus and having a first face perpendicular to the axis of the pipe-in-pipe configuration and a second face directed at the known non-perpendicular angle with respect to the axis of the pipe-in-pipe configuration, the second face of the angle-correcting piece being in contact with the second end face of the plug; and

a second electrically insulating seal, the second seal being in contact with the first face of the angle-correcting piece and having a selected thickness and being disposed such as to concentrically surround the inner pipe and radially fill the annulus.

21. (Original) The apparatus of claim 20, wherein the plug is comprised of polyurethane.

22. (Original) The water stop of claim 20, wherein the first and second seal is comprised of a rubber.

23. (Original) The water stop of claim 20 further comprising a layer of fusion bonded epoxy disposed between the inner pipe and the plug.

24. (Original) The water stop of claim 20 wherein the angle-correcting piece is comprised of a char- resistant material.

25. (Original) The water stop of claim 20 wherein the first face of the second seal supports at least one collar, the collar extending a selected distance from the first face.

26. (Amended) The water stop of claim 20 further comprising a super absorbent material disposed around the collar.

27. (Original) The water stop of claim 20 wherein the second face of the first seal supports at least one collar, the collar extending a selected distance from the second face.

28. (Original) An apparatus for electrically isolating an inner pipe and an outer pipe, wherein the inner pipe is substantially concentric within the outer pipe, forming an annulus, the inner pipe having an outer surface and the outer pipe having an inner surface, comprising:

an electrically insulating centralizer, the centralizer extending radially from the inside pipe to the outside pipe and having a top surface, the top surface having a bevel so as to direct materials in the annulus toward the inside or the outside pipe.

29. (Original) The apparatus of claim 27 further comprising a collar extending along the outer surface of the inner pipe from the top side of the centralizer.

30. (Original) The apparatus of claim 27 further comprising an electrically insulating layer ring extending along the outer surface of the inner pipe.

31. (Original) An electrically heated pipe-in-pipe subsea pipeline having an annulus between an inner pipe and an outer pipe, the pipeline having a seafloor segment and a riser segment, comprising:

a plurality of rings of electrically and thermally insulating material in the annulus, the rings being spaced at selected intervals and extending selected distances along the annulus to cover a selected fraction of the inner pipe, the selected fraction being less in the riser segment than in the seafloor segment.

32. (Original) The pipeline of claim 30 wherein the selected fraction is equal to or near zero for a selected distance along the riser segment.

END AMENDMENTS TO THE CLAIMS